

## College of Engineering Shop Procedure

# PEDESTAL GRINDER PROCEDURE

<b>Dept:</b> Multi-department	<b>Laboratory:</b> Student Machine Shop	<b>Rm:</b> HML 113
<b>Authored by:</b>	<div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="display: flex; justify-content: space-between;"> <span>Dick Sevier, Research Support Engineer</span> <span>Date:</span> </div>	
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<b>Filename:</b>	Pedestal Grinder 03-Oct-11	<b>Revision:</b> 1

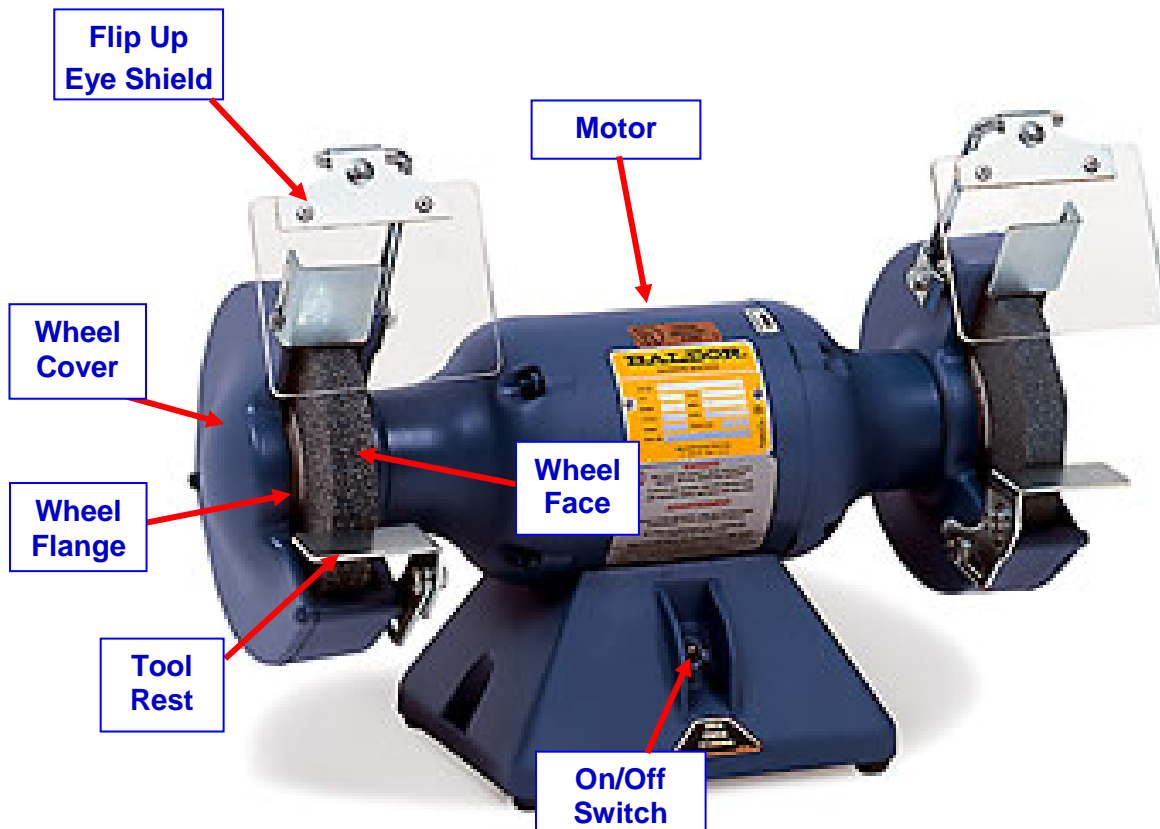
Procedure Type	<input checked="" type="checkbox"/> Process/Protocol <input type="checkbox"/> Chemical <input type="checkbox"/> Hazard Class
<b>Brief Overview &amp; Scope</b>	<p>This procedure provides general instructions on how to use the pedestal grinder. Grinders are often used for grinding the cutting surfaces of tools. When using a grinding wheel, the tool or workpiece is held against a tool rest and brought in contact with the face of the wheel, which rotates at high speed by a direct drive motor. When fitted with polishing or buffing wheels, they can be used to polish a workpiece.</p> <p>This document describes typical operations only; consult a shop supervisor if you need to perform an operation not described here. Changing wheels and maintenance of the tool are beyond the scope of this document due to the skill required and diversity of tools and processes associated with these operations.</p>
<b>Potential Hazards</b>	<ul style="list-style-type: none"> <li>Injury due to entanglement with grinding wheel</li> <li>Injury due to disintegration of wheel.</li> <li>Eye injury due to debris ejected from grinding.</li> <li>Burns due to workpiece becoming hot or sparks showering hand.</li> <li>Sparks from sanding operation igniting flammable materials nearby or dust in a dusty environment.</li> </ul>
<b>Engr. Controls</b>	Wheel covers
<b>PPE</b>	Safety glasses, non-slip, close-toed shoes
<b>Add'l Equipment, Tools:</b>	Tool fixture (opt.), hand broom, dust pan
<b>Mat'ls, Supplies:</b>	Polishing or buffing compound as needed
<b>Add'l Training Requirements</b>	<ul style="list-style-type: none"> <li>All mandatory shop training modules</li> <li>Hands-on training for this tool</li> <li>Video training for this tool</li> </ul>
<b>Special Requirements:</b>	
<b>Handling &amp; Facilities</b>	n/a
<b>Spill &amp; Incident</b>	n/a
<b>Decontamination/ Waste Disposal</b>	n/a
<b>Sources/ References</b>	Some content for this procedure have been taken from the user manual for Baldor Grinders MN903.

# PEDESTAL GRINDER

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## TOOL COMPONENTS



# PEDESTAL GRINDER

## GENERAL TOOL SAFETY RULES

- a. Safety glasses are required to use this tool.
- b. **WARNING:** To prevent entanglement with the wheel:
  - Tie back long hair and tuck under shirt, roll up long sleeves, remove gloves or loose clothing.
  - Remove any gloves, rings, or other jewelry. Note: Tight fitting latex or nitrile gloves are permissible.
  - Keep hands away from wheel.
  - Do not slow or stop the wheel with your hand after powering off. Let the machine stop by itself.
- c. Know the location of start and stop switch.
- d. Do not use any machine in which a guard or cover has been removed. Contact the shop supervisor immediately.
- e. Avoid accidental starting. Make sure switch is in "OFF" position before connecting to power source.
- f. **WARNING:** Never install a wheel that is damaged, such as a chip or crack on any surface. A damaged wheel can disintegrate while rotating at a high RPM or when work is placed against the wheel. This can severely harm the operator or others in the area.
- g. **WARNING:** When starting a grinder for the first time, or after installing a replacement grinding wheel, it is most important that the operator stand aside for at least one minute of rotation at full speed. This is the correct practice since grinding wheels can disintegrate if they have received damage during shipping or handling.
- h. Stop the machine immediately if odd noises or excessive vibration occurs.
- i. Take care to not allow the workpiece to become so hot it burns your fingers if it is handheld.
- j. **WARNING:** This tool may generate sparks. Clear the area of any material that could be ignited from a stray spark from the sanding operation. Do not use this tool in a dusty environment that could be ignited by sparks.
- k. Wear slip-resistant shoes to maintain a secure footing and balance.
- l. Grind on grinding face (periphery) of wheels only.  
**WARNING:** Grinding on side of wheel weakens the wheel and may cause wheel breakage. Also, grinding on the side of wheel introduces an additional hazard due to absence of a tool rest.
- m. **If you have any questions about this tool or its use, stop what you are doing and ask a shop supervisor.**

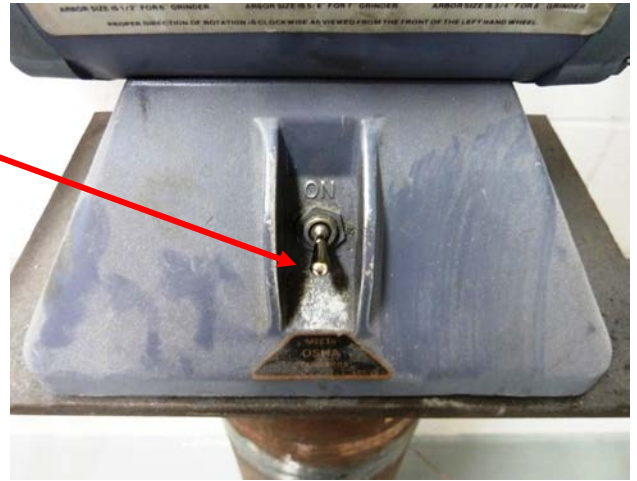
# PEDESTAL GRINDER

## COMMON TASKS

### 1. Stopping the Grinding Wheel

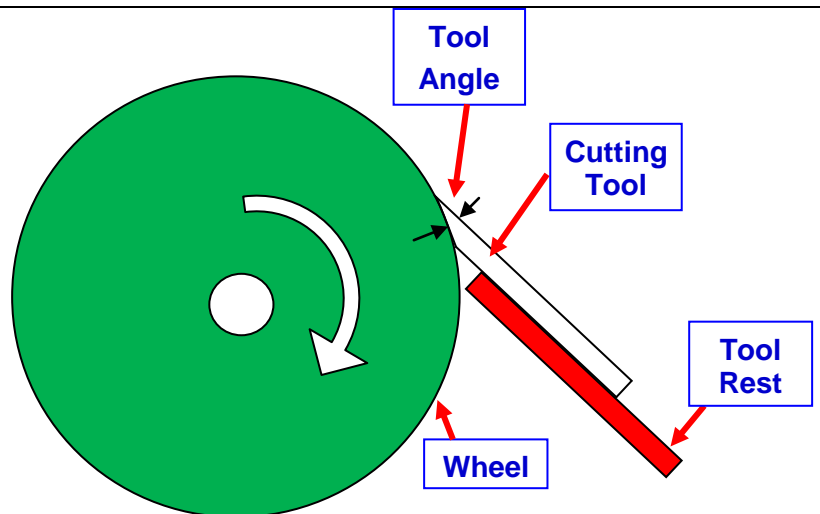
- a. In the course of normal operation or in the event of an emergency, turn off the pedestal grinder by flipping the power switch down in the OFF position as shown.

**WARNING:** The wheel will take some time to slow down and stop. Do not touch the wheel until it has come to a complete stop.



### 2. Setting up Tool

- a. Power off machine before making any adjustments.
- b. If the desired grinding, polishing or buffing wheel is not mounted to the grinder, have the shop supervisor mount the correct wheel.
- c. Adjust angle of tool rest on support to desired position and tighten nut securely. Adjust tool rest support on guard to attain approximately 1/8" or less clearance between tool rest and grinding wheel and tighten nut securely. If the grinding operation is extensive, the tool rest may require repositioning as the wheel face is worn away.



If grinding a cutting tool edge, be sure to set rest so that the tool will be ground at the desired angle. See figure to right.

- d. Adjust eyeshield to position aligning center of eyeshield in line of sight to tool rest.

# PEDESTAL GRINDER

## 3. Turning Machine On

- a) Flip the on/off switch to ON.

**WARNING:** When starting a grinder, particularly after installing a replacement grinding wheel, it is most important that the operator stand aside for at least one minute of rotation at full speed in case a wheel disintegrates at startup.

**WARNING:** Turn the machine off and stand aside immediately if odd noises or excessive vibration occurs

## 4. Grinding a Cutting Tool or Workpiece

- a. **WARNING:** Sparks could result in fire or explosion if combustible materials, vapors have not been removed. Be sure there are no flammable or combustible vapors or dust near the grinder.

- b. Carefully bring the tool in contact with face of the wheel. Do not apply excessive force; let the wheel do the grinding.

**WARNING:** Do not grind on side of wheel, as such grinding can cause wheel to weaken and disintegrate.

- c. If there is an abundant shower of sparks, stop the operation and put on tight-fitting nitrile or latex gloves.

**WARNING:** Do not put on loose fitting gloves, as they may become entangled in the grinding wheel.

- d. Every few seconds, cool the tool or workpiece in the water bath.

**WARNING:** Failure to cool the tool could result in burns to the fingers or hands or inability to hold workpiece.

**CAUTION:** Excessive heat can make reduce its hardness. Be sure when grinding to quench the tool tip frequently.

- e. Avoid wearing grooves in wheel face. If workpiece is narrow, move it from side to side to distribute the wear across the grinding wheel face.

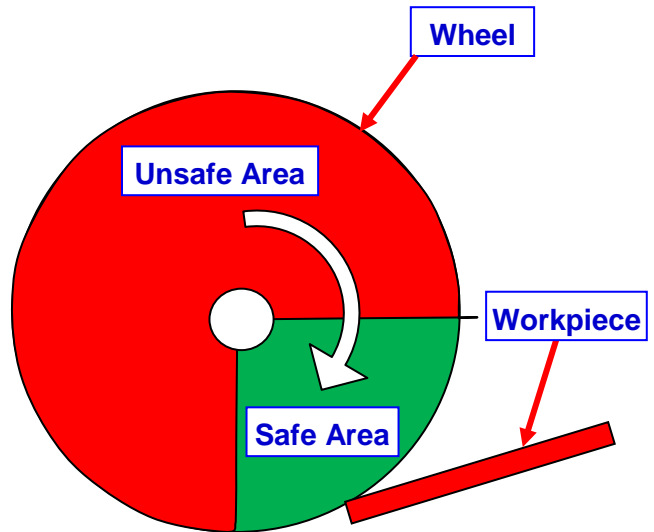
- f. If the cutting tool has been significantly dulled, first grind with a coarser wheel, then finish with a finer wheel. If the tool only requires a light touch up, the finer wheel will be sufficient.

- g. Turn the switch to the OFF position when grinding is completed. Wait for wheel to come to a complete stop before leaving machine.

# PEDESTAL GRINDER

## 5. Polishing or Buffing

- The polishing or buffing wheel is typically operated without a wheel cover. This, and the fact that the wheel is soft and flexible, makes for a much greater entanglement risk.
- Request the shop supervisor to install polishing or buffing wheel as needed.
- Before polishing or buffing, make sure your part is cleaned beforehand to avoid contaminating the wheel.
- WARNING:** Polishing or buffing a workpiece with large holes, hooks or tabs may result in the wheel grabbing the workpiece and pulling it out of your hand.
- WARNING:** Do not use a wheel that is excessively frayed or torn as it may grab the workpiece and pull it out of your hand or disintegrate and strike the user or others in the shop.
- Apply the appropriate compound to the wheel sparingly.
- Hold the workpiece firmly, and introduce it to the wheel, with the front end pointing down. Work only in the green Safe Area below. With light pressure, bring the workpiece in contact with the wheel and rotate so the wheel contacts the workpiece surface where polishing is desired.
- Have the shop supervisor replace the buffing wheel when you are done.



## 6. Cleanup

- Wipe down or brush any accumulation of dust from the tool and surrounding surfaces.
- Sweep the floor around the tool.